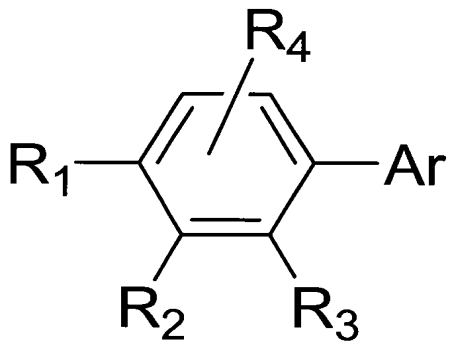
REMARKS/ARGUMENTS

Claims 1-10 are active in this application, new claims 8-10 having been added by this amendment. Claims 1 and 2 have been amended to require that at least one of the groups R_2 and R_3 represent a group of formula (2). This amendment is supported by the claims as originally filed. Claims 6 and 7 have been amended to correct the preamble to correlate with claim 5 from which they depend. New claims 8-10 are supported by the specification and claims as originally filed and cover more preferred embodiments of the material of claim 1. No new matter has been added by these amendments.

The present invention relates to a material for an organic electroluminescence device comprising a compound represented by the following general formula (1):



(1)

where:

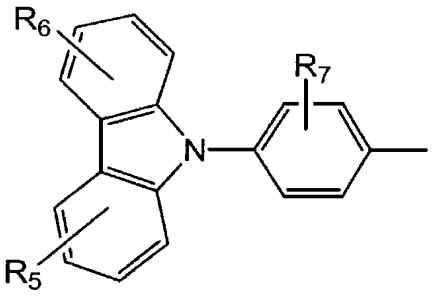
Ar represents a group selected from an aryl group which has 6 to 24 ring carbon atoms and which may have a substituent, a carbazolyl group which may have a substituent, and a carbazolylphenyl group which may have a substituent;

R_1 represents a group represented by the following general formula (2) or (3);

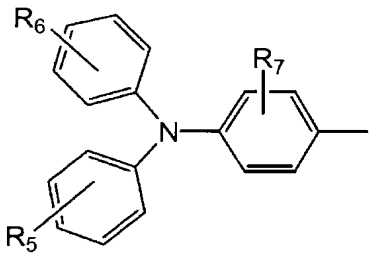
at least one of R_2 and R_3 represents a group represented by the following general formula (2), and the other represents a group represented by the following general formula

(2), a group represented by the following general formula (3), a hydrogen atom, or an aryl group which has 6 to 24 ring carbon atoms and which may have a substituent; and

R_4 represents a hydrogen atom or an aryl group which has 6 to 24 ring carbon atoms and which may have a substituent:



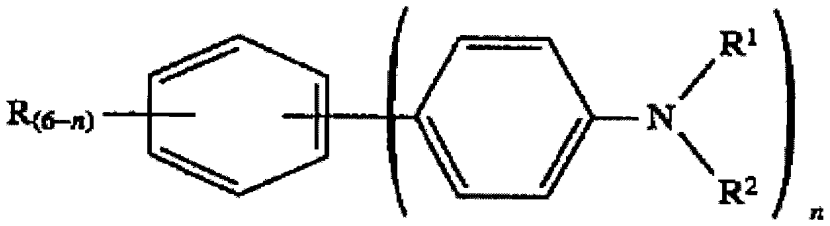
(2)



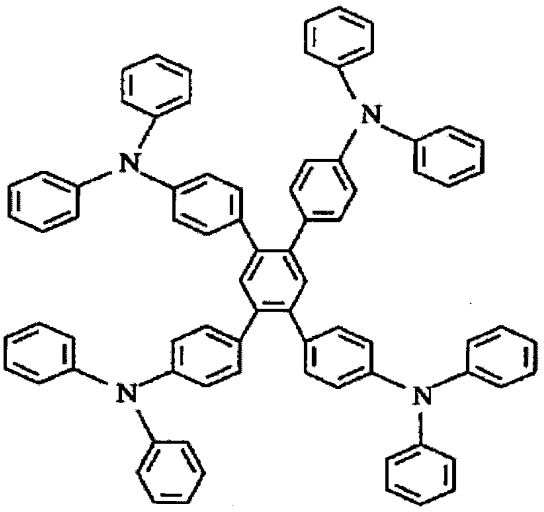
(3)

where R_5, R_6, and R_7 each independently represent a hydrogen atom or a substituent, and an electroluminescence device comprising the material.

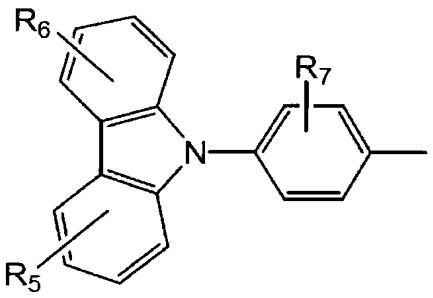
Claims 1, 2, and 5 stand rejected under 35 U.S.C. 102(b) over Shi et al. Shi et al disclose an organic electroluminescent device having an anode and a cathode and an organic electroluminescent material interposed between them. The organic electroluminescent material of Shi et al is a polyaromatic amine of general structure:



Further, Shi et al disclose a specific species of this compound at column 13, as noted by the Examiner:



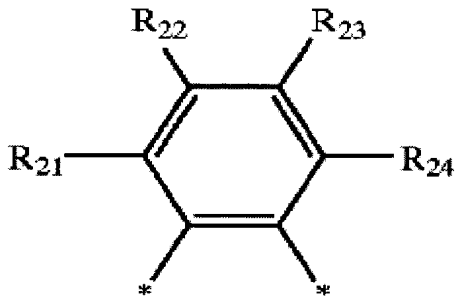
However, the claims of the present invention, as now amended, require that at least one of R2 or R3 must be a group of formula (2):



(2).

None of the various compounds disclosed by Shi et al have such a group present, and none of the compounds of Shi et al can suggest an organic electroluminescent material having such a group. Accordingly, Shi et al cannot anticipate (nor render obvious) the present invention, and the rejection should be withdrawn.

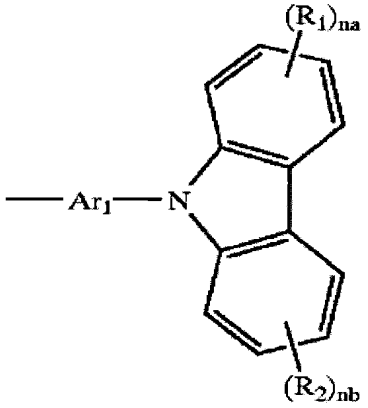
Claims 1 and 3 stand rejected under 35 U.S.C. 103 over Oshiyama et al. Oshiyama discloses an electroluminescent device wherein the organic electroluminescent material has the formula X1-(A1)n, where A1 is selected from a wide variety of possible groups, including formula (b) on page 3:



(b)

OR, A1 could be a group of formula (2):

Formula 2



While the Examiner asserts that formula (b) above is X1 of the Oshiyama reference, that is not what the reference says. In fact, X1 is defined after that, at paragraph [0034] which states:

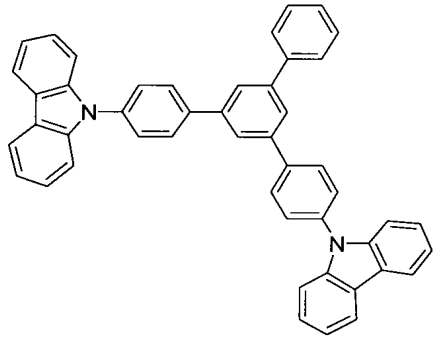
> group, or a halogen atom; R_{61} represents an alkyl group; Xa represents a divalent 6- or 7-membered monocyclic heterocyclic ring which is unsubstituted or alkyl-substituted; R_{71}

(Applicants note that the specification erroneously states "Xa" rather than "X1".)

Accordingly, the Examiner's assumption that formula (b) corresponds to X1 of the general formula is incorrect.

In order for one of ordinary skill to arrive at a compound of the present invention as now claimed, they would have to pick and choose from a huge number of possible alternatives. Further, even if the Examiner maintains that this still renders the present

invention obvious, Applicants have provided a comparison in the present specification in comparative Examples 4 and 7 against a compound (H-4):

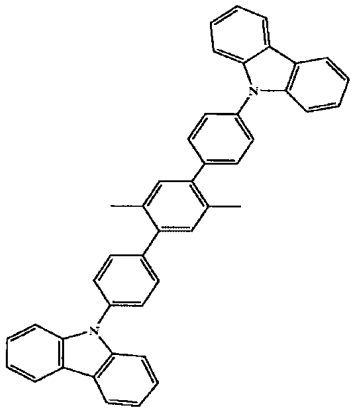


Which falls within the definition of the compounds of Oshiyama. The compounds of the present invention, as now claimed, requires that the compound have a structure wherein the aryl group (Ar) and a group of formula (2) or (3) (for group R1) are arranged on the central benzene ring in a *para-* configuration. This contributes to enhanced steric hindrance, and reduced crystallinity of the organic layer, as noted in the paragraph bridging pages 6 and 7 of the present application. As shown in the specification, the present inventors have found that the present invention materials provide unexpectedly better results in properties such as current efficiency, luminance half life and heat-resistant current light emitting time. As shown in the Examples, Examples 1-6 of the present application have molecular structures where the groups represented by Ar and R1 are para to one another, and provide these improvements compared to Comparative Examples 4 and 7 having the structure (H-4) above, which falls within the scope of the compounds disclosed by Oshiyama. There is nothing within Oshiyama to suggest such a para arrangement of the corresponding groups, nor why one would select the various substituents to arrive at such an arrangement.

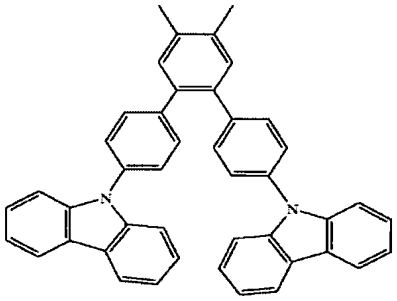
The improvements shown by the present invention are not expected from the Oshiyama reference. Oshiyama discloses compound 1-2 having the carbazolylphenyl group

and a substituent (methyl group) bonded at a meta position and a compound 1-7 having these two substituents at a para position as follows:

1-2



1-7



Further, Oshiyama contains Examples where these are used and the organic EL element using 1-2 (meta substitution between the stated substituents) gave a longer half-life (212%) compared to that using compound 1-7 (170%). Thus, one of ordinary skill would have no reason to expect that by changing 1-7 such that the methyl group was now an aromatic group, thus providing a para-arrangement such as in the present invention, would result in any improvement. Thus one of ordinary skill would have no reason to modify Oshiyama to arrive at the present invention, nor to select from the vast number of possibilities to arrive at the present invention organic material. Thus, the rejection over Oshiyama should be withdrawn.

Claims 4, 6, and 7 stand rejected under 35 U.S.C. 103 over Shi et al in view of either of Hoag et al or Nakamura et al. Shi has been addressed above, and cannot suggest the present invention, wherein at least one of R2 or R3 must be a group of formula (2). Neither of Hoag nor Nakamura can overcome these deficiencies of Shi, since neither of these references discloses compounds having the required substituent groups or arrangement of the substituents as required in the present invention. The compounds of Hoag are various triaza-boron containing heterocycles having no relation to the present invention. Likewise, the

organic materials of Nakamura bear no relation to the present invention materials either. Thus, one of ordinary skill could not combine these references with Shi to arrive at the organic material of the present invention and thus, the rejections should be withdrawn.

Applicants submit that the application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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